

paragraph:

The middle or neutral position of the mirror assembly 10 is shown in Figure 1a, which is a section taken through the assembly along line 1a--1a of Figure 1. The rotation of the mirror portion 16 about the second axis 24 independent of the gimbals portion 14 and/or the frame portion 12 is shown in Figure 1b as indicated by the arrow. Figure 1c shows the middle position of the mirror assembly 10, similar to that shown in Figure 1a, but taken along line 1c--1c of Figure 1. The rotation of the gimbals portion 14 and mirror portion 16 about the first axis 20 independent of frame portion 12 is shown in Figure 1d as indicated by the arrow. The above independent rotation of the mirror 22 of mirror portion 16 about the two axes 20/24 allows direction of an optical beam, as needed by optical switch units.

Please replace the paragraph beginning on line 6 of page 13 with the following rewritten paragraph:

After the mirror is fabricated, an optional reflective layer 161 comprising gold or aluminum, as examples, may be deposited over at least the mirror portion 116, as shown in Figure 8. Alternatively, the reflective layer 161 may be deposited prior to patterning the SOI thin layer 154 to form the frame portion, gimbal portion and mirror portion 112/114/116, not shown.

Please replace the paragraph beginning on line 15 of page 14 with the following rewritten paragraph:

Figure 11 illustrates an embodiment of the micromirror device 110 implemented in an optical switching station 190. The micromirror device 110 is disposed within an array 198 of a plurality of micromirrors 110. The layout of a matrix optical switch station 190 comprises a plurality of parallelly-extending optical switch units 193 and 194. While two optical switch units 193/194 are shown for the purposes of illustration, alternatively, any number of optical switch units 193/194 may be provided, as desired. Optical switch units 193/194 are mounted in a frame 192 such that they are aligned with an optical switch micromirror device 110 in accordance with embodiments of the invention, the micromirror device 110 being fixedly mounted in housing 191. An end portion of fiber optics cable 196 is mounted in a selected fixed position within

housing 191 to optical switch 194. Similarly, fiber optics cable 195 is affixed within the housing 191 to optical switch 193. An optical signal 197 is transmitted in cable 196 and is directed by optical switch unit 194, by reflecting optical signal 197 from optical switch mirror 110 to another selected optical switch unit, such as optical switch 193, which directs optical signal 197 into cable 195. Because the micromirror device 110 has a high resonant frequency, switching may be faster than when using prior art micromirror devices.

Please replace the paragraph beginning on line 1 of page 16 with the following rewritten paragraph:

Because the mirror portion 116 and gimbal portion 114 have a reduced thickness, e.g., one-tenth the thickness of prior art micromirror devices, the micromirror device 110 has lower mass moment of inertia and a higher resonant frequency, e.g. in the order of thousands of Hertz.

This micromirror 110 with a truss support structure will allow very large area mirrors to be fabricated with the highest possible resonant frequencies, e.g. up to 5 mm width per side. The resonant frequency of the micromirror 110 is increased by reducing the mass moment of inertia of the mirror and gimbal portions 116/114. This is especially important for large silicon mirrors (diameters >2 mm) for which the resonant frequency is on the order of normal building and shipping vibrations.

Please replace the paragraph beginning on line 11 of page 16 with the following rewritten paragraph:

When the mirror portion comprises a mirror having a width of at least 2 mm on at least one side, embodiments of the present micromirror 110 having a plurality of truss membranes 140/142 disposed beneath the mirror and gimbal portions 116/114 are particularly advantageous in fiber optic switches, fiber optic networks, optical wireless communications, scanners, and/or other micromirror applications. In particular, in scanner applications, getting the resonant